Rapid Detection of Susceptibility to Ethambutol in Clinical Mycobacterium Tuberculosis Isolated from Tuberculosis Patients by PCR- RFLP

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Background & Objectives: Ethambutol is a key medicine to treat tuberculosis, and resisting against it has been increasingly reported. In this paper PCR-RFLP methods to quickly identify the resistance of *Mycobacterium tuberculoses* stains against the ethambutol has been investigated.

Methods: In this study, 127 stains in Arak Research Center, 60 stains were investigated; then DNA was separated by Chelex100 methods. PCR was executed for amplification of 167 bp of embB gene with the help of exclusive primers. PCR product, using HaeIII, was RELPed and the bands patter was determined. The section was sequenced in a few samples, and it was compared to the presented methods as golden standard.

Results: Out of 60 studied stains, 43 were phenotypically resistant to ethambutol, and 17 were sensitive. PCR revealed the band 167, which showed the correct selection of primers and the appropriate plan of amplification. Out of 43 resistant stains, 19 stains were diagnosed to have mutation in ATG-Met codon 360 using RFLP Methods, and 24 were found to be non-mutant.

Conclusion: Results show that PCR-RFLP can be a simple and quick methods to diagnose the ethambutol -sensitivity in *Mycobacterium tuberculosis* stains.

Keywords: Ethambutol; *Mycobacterium tuberculosis*; PCR; RFLP